

Daily GLOWBUGS

Digest: V1 #110

via AB4EL Web Digests @ SunSITE

Purpose: building and operating vacuum tube-based QRP rigs

[AB4EL Ham Radio Homepage @ SunSITE](#)

%%%% GlowBugs %%%%% GlowBugs %%%%% GlowBugs %%%%% GlowBugs %%%%%

Subject: glowbugs V1 #110

glowbugs

Friday, September 12 1997

Volume 01 : Number 110

Date: Thu, 11 Sep 1997 15:28:55 -0500

From: "Chuck (Jack) Hawley" <c-hawley@uiuc.edu>

Subject: Re: Quick toroid question

Jeff Duntemann wrote:

> As I understand it, toroid cores confine the RF flux pretty much to
> the
> core. This being the case, placing a steel bolt or other metallic
> object
> through the *middle* of the core shouldn't affect the core performance
>
> much. Right?
>
> I have a T184-2 core that I'd like to use as the main pi net inductor
> in a
> 50-watt input transmitter. It would be convenient to mount the core
> behind
> a wafer switch for bandswitching, such that the rotary actuator bar
> (that
> flattened thing running down the middle of multigang rotary switches)
> runs
> through the middle of the core.
>
> The T-184 is a BIG core (almost two inches) and the bar would go
> through
> dead center, well away from the core and the windings. Is this likely
> to
> affect Q significantly? My understanding says no--but I've been wrong
> before.

As long as there is no complete turn from the metal going thru the toroid, no problem.

- --

Charles (Jack) Hawley
Chuck....Ham Radio KE9UW
AKA "Jack" BMW Motorcycles, MOA #224 K100RS
Wife rides...Viki, MOA #18120 K100RS
President IBMWR
c-hawley@uiuc.edu
Sr. Research Engineer Emeritus
University of Illinois, Urbana-Champaign

Date: Thu, 11 Sep 1997 20:35:21 EDT
From: kmlh@juno.com (kmlh @ juno.com)
Subject: Re: Quick toroid question

On Thu, 11 Sep 1997 14:23:32 -0700 (MST) Jeff Duntemann
<jeffd@coriolis.com> writes:
>Bobbi--

>

>Yikes! I never thought of a shorted turn through the middle!

I accidentally hit delete instead of reply to your original message Jeff.

You will get the shorted turn if you sandwich the toroid between two metal plates and with a metal bolt connecting them. It does not matter the material. This was a mistake made by a commercial antenna manufacturer several years ago. They have corrected that engineering gaffe and are most recently known for ATU's that catch on fire.

Even when insulated from the shorted turn a toroid will be influenced by any metallic object placed thru the core. The final result will depend upon the current thru the core. What will present a miniscule effect on say a 160M rcvr coil will become fodder for smoke at TX power levels. At very high power levels even a nylon mounting screw can melt down. I mount any TX toroid between two fiberglass or phenolic (perf board works FB) plates and with a ceramic insulator in the center. Use short stainless or brass screws to secure to the insulator. The toroid should be spaced at least its own height above an aluminum chassis, double that for steel. Altho a toroid is fairly self shielding it will be affected by large amounts of metal in close proximity. In those cases I use a second ceramic standoff and secure the two of them with a threaded rod (a screw with the head cut off).

Plexiglass, phenolic, lucite, etc work fine at < 300W or so power levels; use fiberglass or Teflon for serious QRO work. Those with the tools can make the standoffs from any decent material as long as power and frequency precautions are observed.

SNIPS

>

>A thick iron shank could be a haven for eddy currents, whether it's
>shorted
>or not, no?

Absolutely as mentioned above. To repeat; it really depends on the power and frequency. In a RX many things are forgiven. At a KW.....ouch.

One other thing, in a TX ATU it would not be advisable to use ferrite material. Powdered iron with a μ of 10 (2 Mix) or a μ of 8 (6 Mix) is preferred at HF.

73....Carl KM1H

>
>Thanks much for your thoughts. This is the sort of thing I wouldn't
>have
>hit upon on my own.
>
>--73--
>
>--JD--

Date: Thu, 11 Sep 1997 18:23:01 -0700 (PDT)

From: tomrice@netcom.com (Tom R. Rice)

Subject: Re: C-W Xtals extends offer!

The following is forwarded from John Morris.
Please direct all replies and inquiries to
him at his new e-mail address; I'm just the
middle man!

73 de WB6BYH

> From: "C-W Crystals" <cwxtal@u-n-i.net> <==== Note new address
> Subject: Re: New e-mail address
> Date: Thu, 11 Sep 97 14:45:21 PDT
>
> OK FB TOM,
> I guess since I haven't had e-mail since the first, and I had extended the
> xtal offers till the 10th of Sept. since we had Labor Day.....I will
> extend the offer for another 10 days. If you could post that on boat
> anchors and glow bugs it would help me till I can get re-subscribed.
> I've started to get inquiries as to whether I'll still take the orders
> since they have been unable to get to me on e-mail.
>
> I still have one more load to haul up here from CW Crystals so maybe this
> weekend will finish it all up.
>
> 73 John
>
> John Morris
> C-W CRYSTALS (Formerly Phoenix Crystals)
> 1714 NORTH ASH ST.
> NEVADA, MO 64772
>
> Phone: (417) 667-6179
> FAX: (417) 667-6169
> E-mail: cwxtal@u-n-i.net

>
> Supplying custom crystals for Vintage Equipment, QRP'ers, Amateurs, and
> Experimenters since 1933.
>

- -----end of forwarded message-----

Be Alert! America Needs More Lerts!

- --
"Start off every day with a smile and get it over with." --W.C.Fields
Tom R. Rice
tomrice@netcom.com

Date: Fri, 12 Sep 1997 13:38:17 +1000
From: Murray Kelly <mkelly@powerup.com.au>
Subject: Re: Quick toroid question

I always thought a 'shorted turn' was right thru and back.
There being no such thing as a half turn with toroids.

kmlh @ jun0.com wrote:

> You will get the shorted turn if you sandwich the toroid between two
> metal plates and with a metal bolt connecting them. It does not matter
> the material.

> Even when insulated from the shorted turn a toroid will be influenced by
> any metallic object placed thru the core. The final result will depend
> upon the current thru the core.

Being 'open' there won't be any current?

> even a nylon mounting screw can melt down.

Current in a nylon screw?

> The toroid should
> be spaced at least its own height above an aluminum chassis, double that
> for steel. Altho a toroid is fairly self shielding it will be affected by
> large amounts of metal in close proximity.

This is generous even for solenoids, according to antenna tuner mfg-ers.

Ferrite seems best for transformers (baluns etc) and powder for resonant
coils?

> One other thing, in a TX ATU it would not be advisable to use ferrite
> material. Powdered iron with a mu of 10 (2 Mix) or a mu of 8 (6 Mix)
> is preferred at HF.

* Murray Kelly vk4aok mkelly@powerup.com.au *
* 29 Molonga Ter. / Graceville/ QLD. 4075/ Australia *

* ph/fax Intl+ 61 7 3379 3307 *

Date: Fri, 12 Sep 1997 12:27:58 EDT
From: kmlh@juno.com (kmlh @ juno.com)
Subject: Re: Quick toroid question

On Fri, 12 Sep 1997 13:38:17 +1000 Murray Kelly <mkelly@powerup.com.au> writes:

>I always thought a 'shorted turn' was right thru and back.
>There being no such thing as a half turn with toroids.

I believe we are in agreement Murray, I just failed to mention that the 2 plates were at the same potential. Sorry for the confusion.

73....Carl KMLH

>
>
>kmlh @ juno.com wrote:
>
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>> metal plates and with a metal bolt connecting them. It does not
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>> the material.
>
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>> any metallic object placed thru the core. The final result will
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>
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>*****
>* Murray Kelly vk4aok mkelly@powerup.com.au *
>* 29 Molonga Ter. / Graceville/ QLD. 4075/ Australia *
>* ph/fax Intl+ 61 7 3379 3307 *
>*****
>
>
>

Date: Fri, 12 Sep 1997 10:00:51 -0700 (PDT)
From: Ken Gordon <keng@uidaho.edu>
Subject: Re: RS transformers

> > windings: Roughly $R(Z) = 25/3 \approx 8.33333$ ohms, and $115/.652 \approx 176$ ohms,
> > then $115/8.333 \approx 13$ amps, and lastly $115 * 13 \approx 1495$ VA. Blooey!!!!!!
>
> Ah well. I knew there was something basic that I was missing.
> It was a nice idea while it lasted....
>

Hee hee! Such are the visciditudes (sp?) of ham-dom.

BTW, I want all to notice that I said above, "ROUGHLY..." actually I should have said, "Very roughly, and good enough for a quick check..."

Ken

Date: Fri, 12 Sep 1997 10:03:33 -0700 (PDT)
From: Ken Gordon <keng@uidaho.edu>
Subject: Re: RS transformers

On Mon, 8 Sep 1997, BOB DUCKWORTH wrote:

> O.K. so let's say Shane buys 6 of these transformers and
> puts the 25V sides in series and the secondaries in series paying
> attention to phase.
> Now he's got roughly 6 x 90V or 540V at 550ma available.
> Run a full wave and big caps and he's got about 700V at
> 800ma for a 50% duty cycle service.

YEAH!!!!!!! Way to go!!!!!!

>
> Hey, I should take my 2 x 2200V microwave oven transformers
> and series the secondaries and parallel primaries and get
> 5KV or so at half an amp for the 4-1000 :-)

Use 4 of them in series-parallel and get 5 KV at an amp!!!! And they are

CHEAP!!!

Ken

Date: Fri, 12 Sep 1997 10:14:40 -0700 (PDT)
From: Ken Gordon <keng@uidaho.edu>
Subject: Re: RS transformers

> Actually there is more than one possible problem with operating
> transformers in other than intended ways, which could lead to
> 'breakdown'. As explained in another post, operating a winding at
> substantially higher voltage and/or lower frequency than rated can
> saturate the core, turning the windings into low-value resistors for
> portions of the AC wave, causing excessive heat at the least.
> There's also the issue of how much insulation is used for the
> windings, which determines the ratings between different windings and
> between each winding and the core/frame. For the 'high side' of the six
> transformers in the example above, the 540vrms output will have about
> 750v peak, which could be near or above the winding-to- frame rating of
> a primary winding which the designer expected to never have more than
> 200 volts on it. in a way other than it's designed for, but one needs
> to keep ALL the ratings in mind.

But if you are connecting all the 115 VAC windings in series, wouldn't the
750v peak be spread across all 6 cores so that the peak voltage across any
one would be 750/6 ?

Ken

Date: Fri, 12 Sep 1997 18:36:19 -0400
From: "Brian Carling" <bry@mnsinc.com>
Subject: Re: "BA" net activity

I feel very strongly about this. It's time the ARRL acted responsibly
to try to reduce the ever-encroaching SSB and DATA QRM on 40m below
7060 kHz. It has reached the point of absurdity and something MUST be
done!

Are they still trying to expand the band? That might help some too!

Bry

On 11 Sep 97 at 0:29, k7sz@juno.com wrote:

>
> On Wed, 10 Sep 1997 23:47:37 +0000 Sandy W5TVW <ebjr@worldnet.att.net>
> writes:
>
> >40 meters seems to be becoming a popourri of modes this past summer.
> >We have experienced very heavy SSB QRM (Several times invited in
> >English to "QSY to CW band!" by Spanish speaking stations!
>
> I have noticed a MASSIVE increase in Spanish SSB QRM. This seems to be a

> growing trend, and not what I would consider a "good" trend at that.
>
> >The digital users seem to be migrating down the band as well and can be
> heard >almost down to 7025 with various AMTOR/PACTOR modes.
>
> This is my "very bestes pet peeve": data dinks on our QRP calling freqs.
> Those of us who do a lot of QRP work are constantaly harrassed by the
> data dinks buzzing and ratcheting away all over our QRP calling freqs. It
> is almost unbearable during QRP contests in the spring and fall. Then the
> data dinks go overboard to make life miserable for those of us who are
> contesting.
>
> This influx of data dinks was originally caused by the ARRL, who in their
> infinite wisdom, started listing 7040 as a digital calling freq. They
> heard from the QRP ARCI on the matter but never did any kind of
> retraction that I saw in print.
>
> Now it seems that QRP freqs are fair game. I have the advantage of a BIG
> antenna on 20/15/10 meters where I can crank up about 25 watts and sound
> loud so I can make life difficult for the data dinks on those bands. But
> I am not all that competitive with antennas on 40 and 80 meters....(80
> mtr Zepp fed with 450 ohm ladder line up at 48 feet at the apex).
> Therefore, I can do little to discourage their data QRM on those bands.
>
> Makes me want to sell the radios and take up stamp collecting.
>
> 73 rich K7SZ
>
>

*** 73 from Radio AF4K/G3XLQ Gaithersburg, MD USA *
** E-mail to: bry@mnsinc.com *
*** See the interesting ham radio resources at: *
** http://www.mnsinc.com/bry/ *

AM International #1024, TENTEN #13582. GRID FM19
Rigs: Valiant, DX-60/HG-10, Eldico TR-75, Millen 90810
FT-840, TM-261, Ameco TX-62, Gonset Communicator III
HTX-202...TEN-TEN #13582, DXCC #17,763 Bicentennial WAS

End of glowbugs V1 #110

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Created by **Steve Modena, AB4EL**
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